

MECHANICAL ABBREVIATIONS

ABBREVIATIONS USED ON DRAWINGS IN GENERAL ARE LISTED BELOW. REFER TO CSI DOCUMENT TD 2-4 DATED NOVEMBER 1986 FOR ANY ABBREVIATION USED ON THE DRAWINGS BUT ARE NOT LISTED BELOW.

ABV ABOVE  
AC AIR CONDITIONING  
ACCU AIR COOLED CONDENSING UNIT  
ACU AIR CONDITIONING UNIT  
AFF ABOVE FINISHED FLOOR  
AFMS AIR FLOW MEASURING STATION  
AHU AIR HANDLING UNIT  
AL ALUMINUM  
ALT ALTERNATIVE  
AMB AMBIENT  
AP ACCESS PANEL  
APPROX APPROXIMATE

AR ACID RESISTANT  
ARCH ARCHITECT(URAL)  
ARV AIR RELIEF VALVE  
AT AIR TRANSFER  
ATR AIR TEMPERATURE RISE  
ATV AIR TURNING VANES  
AUTO AUTOMATIC  
AVE AIR VOLUME EXTRACTOR

BD BAROMETRIC DAMPER  
BDD BACKDRAFT DAMPER  
BHP BREAK HORSEPOWER  
BLDG BUILDING  
BOD BOTTOM OF DUCT  
BOT BOTTOM

C CONNECTOR  
CA COLD AIR  
CAB CABINET  
CD CEILING DIFFUSER  
CDL CONDENSATE DRAIN LINE  
CFM CUBIC FEET PER MINUTE  
CH AIR COOLED CHILLER  
CHWR CHILLED WATER RETURN  
CHWS CHILLED WATER SUPPLY  
CHWP CHILLED WATER PUMP  
CL CENTERLINE  
CLG CEILING  
CMP CORRUGATED METAL PIPE  
CO CLEANOUT  
COL COLUMN  
CONC CONCRETE  
COND CONDENSER(ATE)  
CONN CONNECT/CONNECTION  
CONSTR CONSTRUCTION  
CONTR CONTRACTOR  
CPD CONDENSATE PUMP DISCHARGE  
CPRS COMPRESSOR  
CW COLD WATER (DOMESTIC)  
CWP CONDENSER WATER PUMP  
CWR CONDENSER WATER RETURN  
CWS CONDENSER WATER SUPPLY

D DEPTH/DEEP  
DB DRY BULB TEMPERATURE  
DIA/Ø DIAMETER  
DIFF DIFFUSER  
DISCH DISCHARGE  
DLR DOUBLE LOUVER REGISTER  
DWG DRAWING  
DUC DOOR UNDER CUT

EA EXHAUST AIR  
EF EXHAUST FAN  
EFF EFFICIENCY  
EG EXHAUST GRILLE  
EL ELEVATION  
ELEC ELECTRIC(AL)  
ELEV ELEVATOR  
EMD END OF MAIN DRIP  
EMER EMERGENCY  
EP ELECTRIC/PNEUMATIC  
EQUIP EQUIPMENT  
EXH EXHAUST  
EXIST EXISTING  
EXP EXPANSION  
EXT EXTERIOR  
EXTN EXTENSION

F&TT FLOAT AND THERMOSTATIC TRAP  
FC FLEXIBLE DUCT CONNECTION  
FCU FAN COIL UNIT  
F/SD COMBINATION FIRE/SMOKE DAMPER  
FD FLOOR DRAIN  
FD1 FIRE DAMPER TYPE  
FIN FL/FF FINISH FLOOR  
FLR FLOOR  
FOR FUEL OIL RETURN  
FOS FUEL OIL SUPPLY  
FOV FUEL OIL VENT  
FP FIRE PROTECTION  
FPM FEET PER MINUTE  
FT FEET  
FUR FURNACE

G GAS (NATURAL)  
GA GAUGE  
GAL GALLON  
GALV GALVANIZE(D)  
GPM GALLONS PER MINUTE

H HEIGHT/HIGH  
HDG HEAVY DUTY GRILLE  
HDWE HARDWARE  
HHR HEATING HOT WATER RETURN  
HHS HEATING HOT WATER SUPPLY  
HHWP HEATING HOT WATER PUMP  
HP HORSEPOWER  
HPR HIGH PRESSURE STEAM RETURN  
HPS HIGH PRESSURE STEAM SUPPLY  
HTR HEATER  
HVAC HEATING/VENTILATING/AIR CONDITIONING  
HW HOT WATER (DOMESTIC)

ID INSIDE DIAMETER  
IH INTAKE HOOD  
INCN INCINERATOR  
INSUL INSULATION/INSULATE  
INTR INTERIOR  
INV INVERT

KIT KITCHEN  
KW KILOWATT

L LENGTH/LONG  
LAV LAVATORY  
LF LINEAR FEET  
LP LIQUID PETROLEUM  
LPR LOW PRESSURE STEAM RETURN  
LPS LOW PRESSURE STEAM SUPPLY  
LVR LOUVER

MAX MAXIMUM  
MECH MECHANICAL  
MFR MANUFACTURER  
MH MANHOLE  
MIN MINIMUM  
MISC MISCELLANEOUS  
MOD MOTOR OPERATED DAMPER  
MPR MEDIUM PRESSURE STEAM RETURN  
MPS MEDIUM PRESSURE STEAM SUPPLY  
MTD MOUNTED

NIC NOT IN CONTRACT  
NO/# NUMBER  
NOM NOMINAL  
NTS NOT TO SCALE

OA OUTSIDE AIR  
OC ON CENTER  
OD OUTSIDE DIAMETER  
OPNG OPENING  
OR OIL RETURN  
OS OIL SUPPLY  
OSD OPEN SITE DRAIN

P PUMP  
PCHWS PRIMARY CHILLED WATER SUPPLY  
PCHWR PRIMARY CHILLED WATER RETURN  
PE PNEUMATIC/ELECTRIC  
PE PREFABRICATED  
PRV PRESSURE REDUCING VALVE  
PSF POUNDS PER SQUARE FOOT  
PSI POUNDS PER SQUARE INCH  
PTAC PACKAGE TERMINAL AIR CONDITIONING UNIT  
PVC POLYVINYL CHLORIDE

R/RAD RADIUS  
RA RETURN AIR  
RACU ROOM AIR CONDITIONING UNIT  
RADN RADIATION  
RAG RETURN AIR GRILLE  
RCP REINFORCED CONCRETE PIPE  
RD ROOF DRAIN  
REG REGISTER  
REQ'D REQUIRED  
RH RELIEF HOOD  
RHW RECIRCULATED HOT WATER (DOMESTIC)  
RL REFRIGERANT LIQUID  
RL48 RETURN LINEAR SLOT DIFFUSER (48" LONG)  
RM ROOM  
RP RADIANT PANEL  
RPM REVOLUTIONS PER MINUTE  
RS REFRIGERANT SUCTION  
RSD ROUND SUPPLY DIFFUSER

SA SUPPLY AIR  
SCHED SCHEDULE  
SD SUPPLY DIFFUSER  
SAG SUPPLY AIR GRILLE  
SHT SHEET  
SIM SIMILAR  
SL48 SUPPLY LINEAR SLOT DIFFUSER (48" LONG)  
SP STATIC PRESSURE  
SPEC(S) SPECIFICATION(S)  
STD STANDARD

TC TEMPERATURE CONTROL  
TCV TEMPERATURE CONTROL VALVE  
TD TEMPERATURE DIFFERENCE  
TEMP TEMPERATURE  
TKV THERMAL EXPANSION VALVE  
TYP TYPICAL

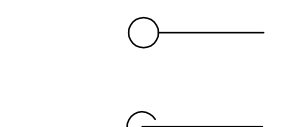
UH UNIT HEATER  
UON UNLESS OTHERWISE NOTED  
UV UNIT VENTILATOR

V VENT  
VA VALVE  
VAC VACUUM  
VAV VARIABLE AIR VOLUME  
VB VACUUM BREAKER  
VD VOLUME DAMPER  
VEL VELOCITY  
VIF VERIFY IN FIELD  
VVF VARIABLE VOLUME-FAN POWERED  
VVR VARIABLE VOLUME-REHEAT  
VFD VARIABLE FREQUENCY DRIVE

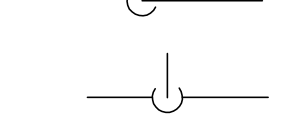
W WIDE/WIDTH  
W WITH  
W/O WITHOUT  
WB WET BULB TEMPERATURE  
WCO WALL CLEANOUT

MECHANICAL SYMBOLS

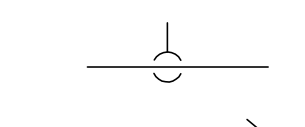
NOTE: ALL SYMBOLS MAY NOT BE USED ON THIS PROJECT.



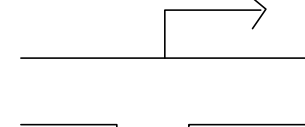
PIPE TURNED UP



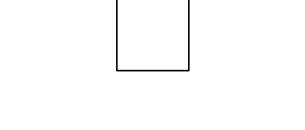
PIPE TURNED DOWN



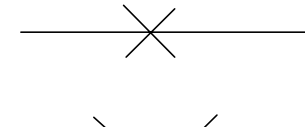
PIPE OUT TOP



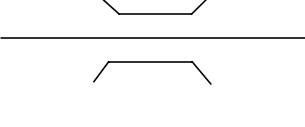
PIPE OUT BOTTOM



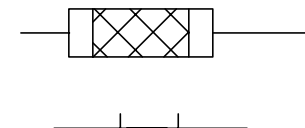
INDICATES DIRECTION OF DOWNWARD PITCH



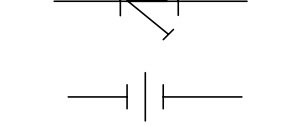
INDICATES EXPANSION LOOP



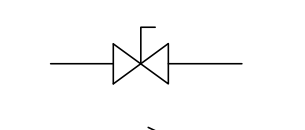
PIPE ANCHOR



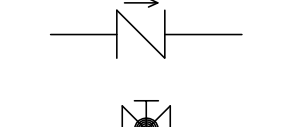
PIPE EXPANSION JOINT



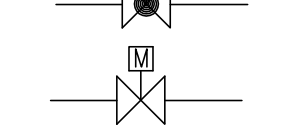
STRAINER



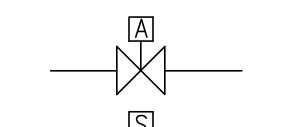
UNION



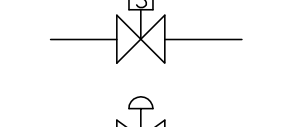
SHUT-OFF VALVE



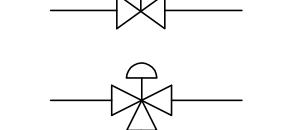
CHECK VALVE (ARROW TOWARD DIRECTION OF FREE FLOW)



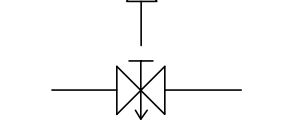
BALANCING VALVE



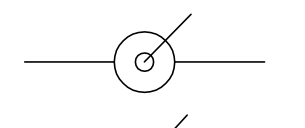
MOTOR OPERATED VALVE



PNEUMATIC OPERATED VALVE



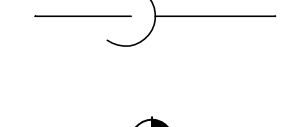
SOLENOID OPERATED VALVE



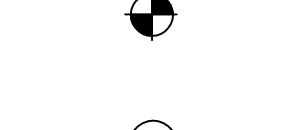
2-WAY TEMPERATURE CONTROL VALVE



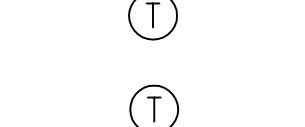
3-WAY TEMPERATURE CONTROL VALVE



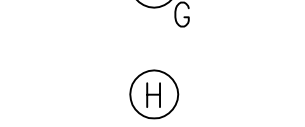
NEEDLE VALVE



WATER PRESSURE REDUCING/REGULATING VALVE



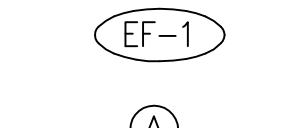
WATER PRESSURE RELIEF VALVE



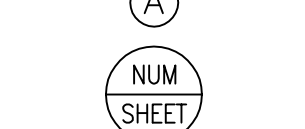
AIR RELIEF VENT  
CONNECT NEW TO EXISTING, VERIFY SIZE AND LOCATION OF EXISTING ON SITE



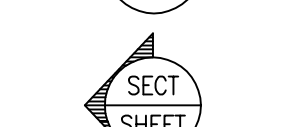
THERMOSTAT



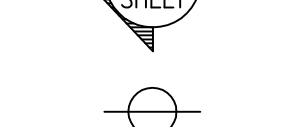
THERMOSTAT WITH GUARD



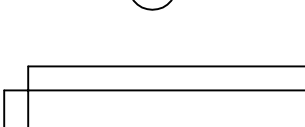
HUMIDISTAT



PLAN NOTES



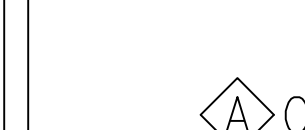
EQUIPMENT SCHEDULE NUMBER



EQUIPMENT NOTES



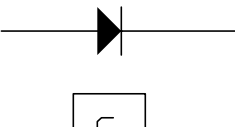
DETAIL REFERENCE BUBBLE



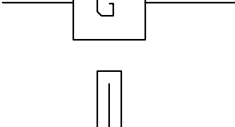
SECTION REFERENCE BUBBLE



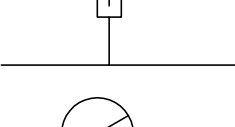
FLAT OVAL DUCTWORK



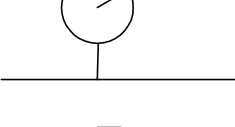
ECCENTRIC REDUCER



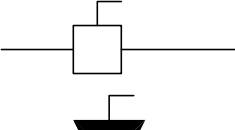
FLOW CONTROL VALVE



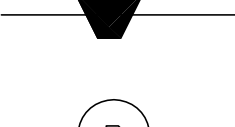
THERMOMETER



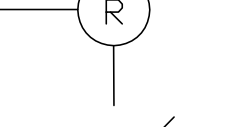
PRESSURE GAUGE



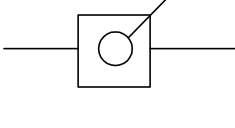
GAS SHUT-OFF COCK



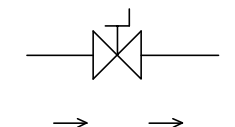
LUBRICATED PLUG VALVE



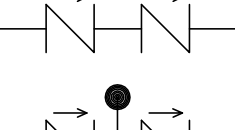
SAFETY PRESSURE RELIEF VALVE



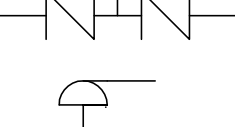
GAS PRESSURE REDUCING/REGULATING VALVE



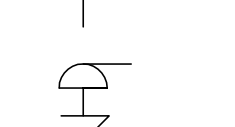
CHAIN OPERATED VALVE



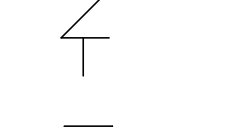
DOUBLE CHECK VALVE ASSEMBLY



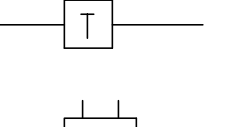
REDUCED PRESSURE BACKFLOW PREVENTER



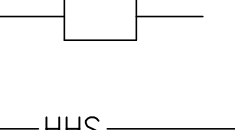
ATMOSPHERIC VACUUM BREAKER



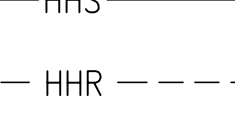
PRESSURE VACUUM BREAKER



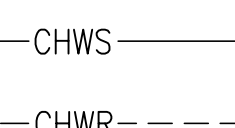
STEAM TRAP



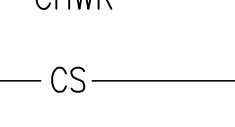
GRISWOLD FLOW CONTROL VALVE



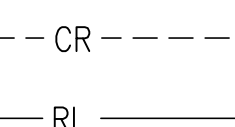
HEATING HOT WATER SUPPLY



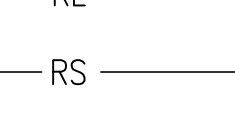
HEATING HOT WATER RETURN



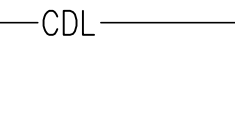
CHILLED WATER SUPPLY



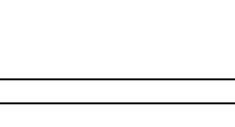
CHILLED WATER RETURN



CONDENSER WATER SUPPLY



CONDENSER WATER RETURN



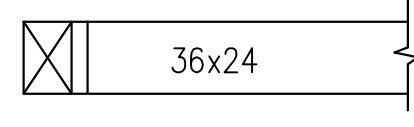
REFRIGERANT LIQUID



REFRIGERANT SUCTION



CONDENSATE DRAIN LINE



SUPPLY AIR ELBOW UP  
DIMENSION DESCRIPTION:  
1ST FIGURE = SIDE SHOWN  
2ND FIGURE = SIDE NOT SHOWN



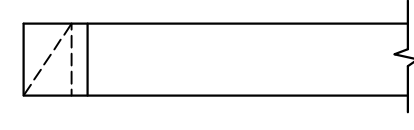
SUPPLY AIR ELBOW DOWN



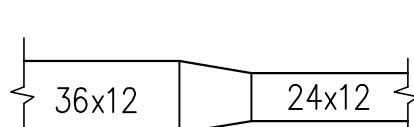
EXHAUST/RETURN AIR ELBOW UP



EXHAUST/RETURN AIR ELBOW DOWN



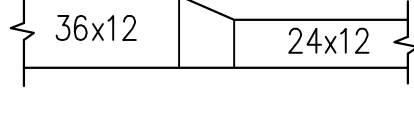
DOUBLE SIDE TRANSITION  
TRANSITION SLOPE SPECIFICATION:  
MINIMUM SLOPE = 15'  
MAXIMUM SLOPE = 45'  
ALL SIZES IN INCHES



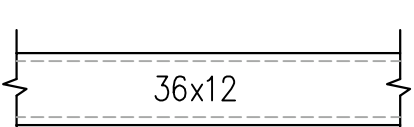
SINGLE SIDE TRANSITION



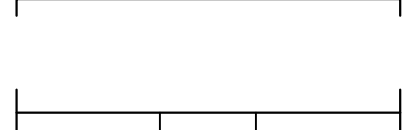
INTERNALLY LINED DUCTWORK



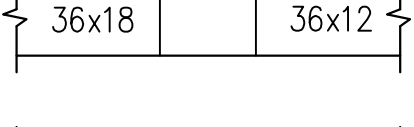
TOP TRANSITION (SLOPE ON TOP)



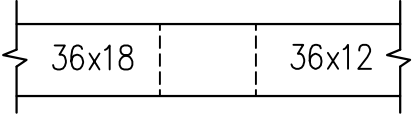
BOTTOM TRANSITION (SLOPE ON BOTTOM)



ANGELED RISE IN RECTANGULAR DUCTWORK



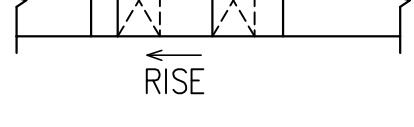
ELBOW UP  
DIMENSION DESCRIPTION:  
14"Ø = ROUND DUCT  
24/12 FO = FLAT OVAL DUCT



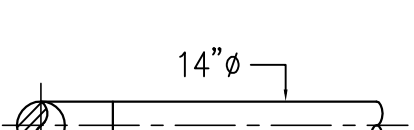
ELBOW DOWN



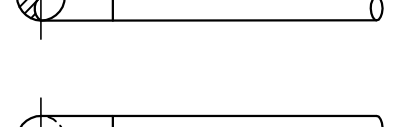
ELBOW - RADIUS (R) =  
1.5 TIMES DIAMETER OF DUCT



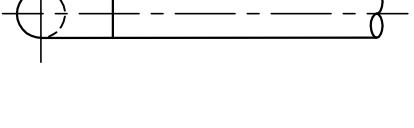
ANGLED RISE IN ROUND DUCTWORK



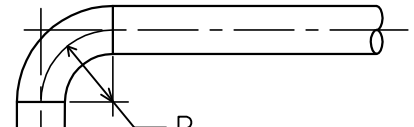
SQUARE OR RECTANGULAR DUCT  
TAKE-OFF FROM MAIN. PROVIDE  
BALANCING DAMPER AT TAKE-OFF  
IF BRANCH DUCT SERVES A SINGLE  
AIR TERMINAL DEVICE.



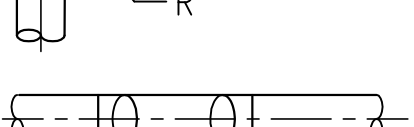
ROUND OR FLAT OVAL DUCT  
TAKE-OFF FROM MAIN. PROVIDE  
BALANCING DAMPER AT TAKE-OFF  
IF BRANCH DUCT SERVES A SINGLE  
AIR TERMINAL DEVICE.



CONNECTION TO FAN POWERED  
TERMINAL UNITS. FLEXIBLE  
CONNECTIONS ON INLET AND  
DISCHARGE OF UNIT. PROVIDE  
VIBRATION ISOLATING HANGERS  
ON ALL FAN POWERED TERMINAL  
UNITS.



CONNECTION TO INLINE FAN.  
FLEXIBLE CONNECTION ON INLET  
AND OUTLET OF FAN. PROVIDE  
FLEXIBLE CONNECTIONS ON ALL  
SUSPENDED FANS.

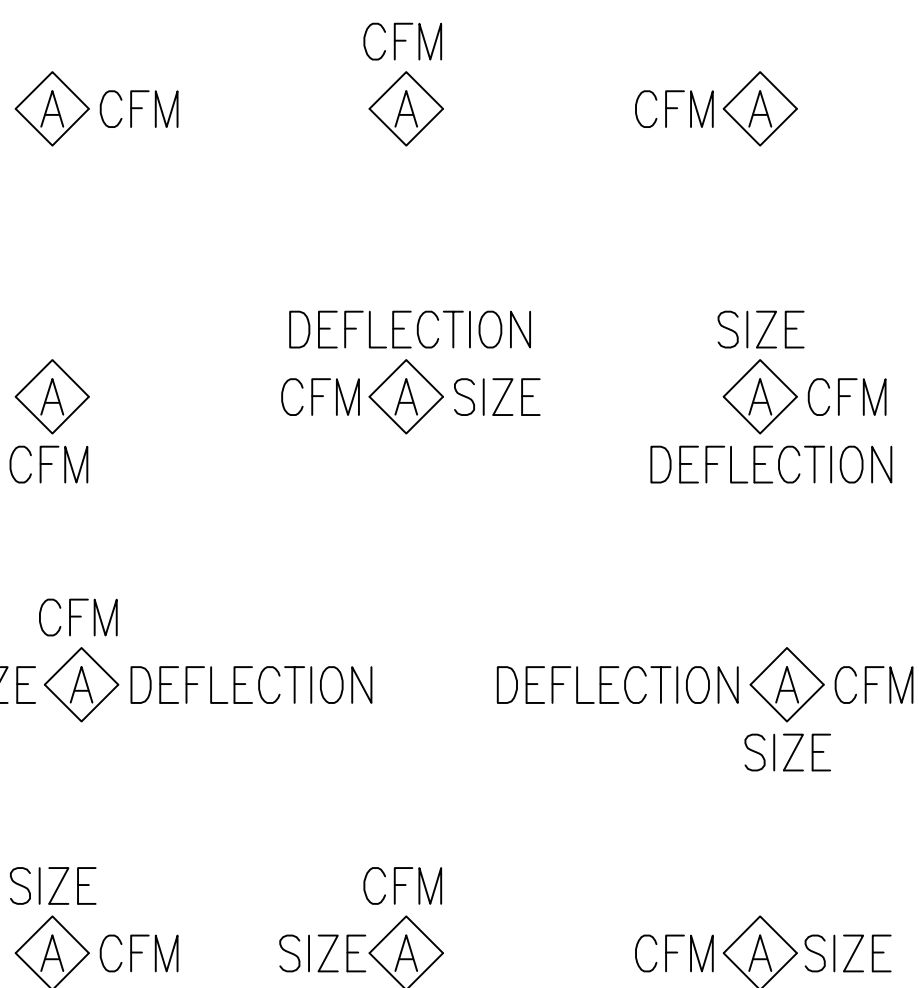


MAXIMUM LENGTH OF FLEXIBLE  
DUCT TO AIR TERMINAL DEVICE  
SHALL NOT EXCEED 5'-0" IN  
LENGTH. CONNECTIONS TO  
TERMINAL DEVICES SHALL BE  
BANDED AND TAPED.

CONTRACTOR NOTE:

ALL EQUIPMENT, PIPING  
AND DUCTWORK SUSPENDED  
FROM STRUCTURAL STEEL  
SHALL BE SUPPORTED FROM  
PANEL POINTS ON EACH  
STRUCTURAL MEMBER.

DIFFUSER/GRILLE TAGS



OTHER COMBINATIONS OF  
LOCATIONS ARE POSSIBLE.

CLIENT



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REGISTRATION

MARK DATE DESCRIPTION

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08.20.2009 Concept Review

CGS PROJECT NO.: 2905

DRAWN BY:

CHECKED BY:

GRAPHIC SCALE:

KEY PLAN

SHEET TITLE

MECHANICAL SYMBOLS &  
DETAILS

M1.01